

REMARKS

Applicants appreciate the detailed examination, evidenced by the Office Action mailed January 26, 2005 (hereinafter "Office Action"). Applicants further appreciate the indication that Claims 11-14 recite patentable subject matter, and the Examiner's identification of inadvertent errors in the Abstract and in Claims 11 and 13. In response, Applicants have corrected these errors, along with some typographical errors in Claim 9. Applicants have also amended Claim 15 to clarify the nature of the claimed subject matter and to obviate the errors noted in the Office Action. Applicants respectfully traverse the rejections of Claims 1-10, 15 and 16 based on various combinations of U.S. Patent no. 5,828,612 to Yu et al. (hereinafter "Yu") and Applicants' alleged admissions of prior art (hereinafter "APA") for at least the reasons discussed in detail below.

Independent Claims 1, 6, 9 and 15 are patentable over Yu and APA

Independent Claim 1 stands rejected under 35 U.S.C. §103 as unpatentable over Yu in view of APA. The Office Action asserts that Yu teaches a precharge circuit that receives an initiating clock signal CLK and a write enable signal R/W, and that precharges a data line responsive to the initiating signal at a time that is determined by a state of the write enable signal. *See Office Action*, p. 3. The Office Action concedes that "Yu does not disclose that the initiating signal is a column bank address signal," but asserts that "[s]ince memories with multiple banks that generate a column bank address signal to initiate a read/write operation . . . it would have been obvious at the time the invention was made to a person having ordinary skill in the art to apply the Yu's precharging means to such memories, for the purpose of increasing the frequency of operation in such memories." *Office Action*, pp. 5 and 6.

Applicants respectfully traverse this rejection, as there is no evidence from the prior art as to why the proposed modification of Yu would be desirable or even feasible. In particular, the Office Action appears to propose replacement of the initiating clock signal CLK described in Yu with the column bank address signal CBA shown in FIGs. 1A and 1B of the present application. However, there is nothing in Yu or the Background of the Invention section of the application that teaches or suggests the desirability of such a substitution. There is also no evidence as to whether such a substitution would result in an operational circuit, as the circuits shown in FIGs. 2 and 4 of Yu rely on particular timing

relationships among the clock signal CLK and the read/write signal R/W, and no relationship of the timing of these signals to a column bank address signal is shown in either Yu or the Background of the Invention section of the present application. For at least these reasons, Applicants submit that the cited combination of Yu and APA does not disclose or suggest the recitations of Claim 1, and that Claim 1 is, therefore, patentable.

Independent Claim 6 also stands rejected as obvious over Yu and APA. The Office Action is unclear as to the specific basis used to reject Claim 6, as the discussion on pages 3-6 of the Office Action appears to progress through Claims 1-4 and then skips to Claim 7. Applicants assume that the basis for rejecting Claim 6 is similar to that provided for Claim 3.

Applicants submit that Claim 6 is patentable over Yu and APA for at least reasons similar to those discussed above with reference to Claim 1, i.e., the Office Action provides no evidence from the prior art of a suggestion or motivation to modify Yu to replace the operations therein that occur responsive to a clock signal CLK with operations that occur responsive to a column bank address signal. Applicants also submit that the reasoning applied to Claim 3 is also unsupported and, therefore, does not support a rejection of Claim 6.

In rejecting Claim 3, the Office Action asserts that the DEFAULT PRECHARGE TRIGGER and the WRITE PRECHARGE TRIGGER correspond to the recited "first delayed signal" and "second delayed signal," respectively, of Claim 3. Applicants respectfully submit, however, that Yu does not disclose or suggest selective application of *one* of two different precharge control signals generated from the DEFAULT PRECHARGE TRIGGER and the WRITE PRECHARGE TRIGGER signals responsive to a "precharge delay control signal" in Yu. In particular, referring to FIGs. 2 and 3 of Yu, the DEFAULT PRECHARGE TRIGGER is asserted irrespective of whether a read or write operation is occurring. *See* Yu, column 5, lines 22-39. Accordingly, the READ PRECHARGE signal (active low) is asserted regardless of whether a read or a write cycle is occurring. In particular, during a write cycle, *both* of the WRITE PRECHARGE and READ PRECHARGE signals are asserted. Accordingly, if a substitution of the DEFAULT PRECHARGE TRIGGER and the WRITE PRECHARGE TRIGGER for the recited "first delayed signal" and "second delayed signal," respectively, were to be attempted, Yu does not "apply to the precharge circuit, responsive to a precharge delay control signal, a selected one of a first precharge control signal generated from the first delayed signal and a second precharge control signal generated from the second

delayed signal," as recited in Claim 6. Accordingly, Yu does not provide the teachings alleged in the Office Action.

For at least the foregoing reasons, Applicants submit that the combination of Yu and APA does not disclose or suggest the recitations of independent Claim 6 and that, therefore, independent Claim 6 is patentable. Similar reasons support the patentability of independent Claim 9.

Claim 15 stands rejected as obvious over APA in view of Yu. Applicants submit that Claim 15, as amended, is patentable over this combination for at least similar reasons discussed above with respect to Claims 6 and 9. In particular, along lines discussed above, the proposed combination of APA and Yu does not disclose or suggest "selectively generating the precharge control signal from *one* of the first signal or the second signal based on a state of a write enable signal." Accordingly, Applicants submit that amended Claim 15 is patentable.

The dependent claims are patentable

Applicants submit that the dependent claims are patentable at least by virtue of depending from various ones of patentable independent Claims 1, 6, 9 and 15. Applicants further submit that several of the dependent claims are separately patentable. For example, Claim 2, which stands rejected as obvious over Yu in view of APA, recites delaying "the precharge control signal with respect to the column bank address signal responsive to the write enable signal." As noted above, there is no evidence from the prior art of a suggestion or motivation to apply a column bank address signal to the circuitry described in Yu and, therefore, the cited combination cannot disclose or suggest "delaying the precharge control signal with respect to the column bank address signal" as recited in Claim 2. For at least this reason, Applicants submit that Claim 2 is separately patentable. Claim 3 is separately patentable for reasons discussed above with reference to Claim 6.

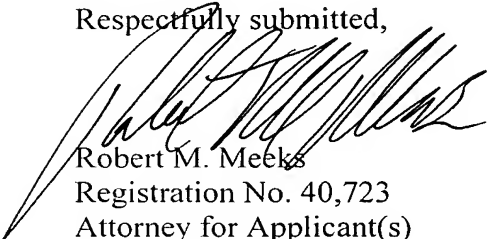
Conclusion

Applicants submit that the objections to and rejections of the claims are overcome for at least the reasons discussed above, and that the claims are, therefore, in condition for

In re: Moon et al.
Serial No.: 10/715,015
Filed: November 17, 2003
Page 11

allowance, which is respectfully requested. Applicants encourage the Examiner to contact the undersigned by telephone to resolve any remaining issues.

Respectfully submitted,

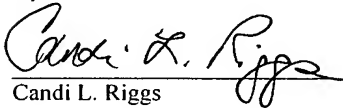


Robert M. Meeks
Registration No. 40,723
Attorney for Applicant(s)

USPTO Customer No. 20792
Myers Bigel Sibley & Sajovec
Post Office Box 37428
Raleigh, North Carolina 27627
Telephone: 919/854-1400
Facsimile: 919/854-1401

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on April 4, 2005.



Candi L. Riggs